received two or more resulting signals from the measuring circuit 930. Then the output circuit 950 coupled to the computing circuit 940 produces an output signal based on the computed average signal value associated with each of the microbolometers in the array 110 such that the output signal improves performance, sensitivity, and facility of operation of the microbolometer. The measuring circuit 930 can measure two or more resulting signals associated with each of the two or more bias pulses 510 and can individually control the two or more resulting signals. In some embodiments, the signal circuit can apply corrective signals to produce coarse non-uniformity correction.

IN THE CLAIMS

Please substitute the claim set in the appendix entitled Clean Version of Pending Claims for the previously pending claim set. The substitute claim set is intended to reflect amendment of previously pending claims 1, 4-5, 10, 14-17, 19, 27, 29-31, and 34 and cancellation of claim 28. No claims are added. The specific amendments to individual claims are detailed in the following marked-up set of claims.

1. (Twice Amended) A method for improving performance sensitivity and facility of operation of an array including one or more microbolometers, comprising:

applying two or more bias pulses substantially sequentially during a frame time to each microbolometer [of the microbolometers] in the array;

measuring two or more resulting signals corresponding to the two or more bias pulses;

computing an average signal value from the two or more resulting signals corresponding to each microbolometer [of the microbolometers] in the array during the frame time; and

producing an output signal based on the computed average signal value for each microbolometer [of the microbolometers] in the array during the frame time.

4. (Twice Amended) The method of claim 3, further comprising:

converting the substantially uniform output signal value associated with each microbolometer [of the microbolometers] in the array to a digital signal value.

5. (Twice Amended) The method of claim 4, further comprising:

passing the digital signal value associated with each microbolometer [of the microbolometers] in the array through a digital image processor to correct for image defects.

10. (Twice Amended) The method of claim 1, wherein the two or more resulting signals comprises [comprise]:

two or more [bias] current signals.

14. (Twice Amended) An infrared radiation detector apparatus, comprising:

microbolometers in an array;

a timing circuit coupled to the array to apply two or more bias pulses substantially sequentially to each microbolometer [of the microbolometers] in the array during a frame time;

a measuring circuit coupled to the array to measure two or more resulting signals associated with each of the applied two or more bias pulses during the frame time;

a computing circuit coupled to the measuring circuit to compute an average signal value for each microbolometer [of the microbolometers] in the array from the measured two or more resulting signals during the frame time; and

an output circuit coupled to the computing circuit to produce an output signal based on the computed average signal value for each microbolometer [of the microbolometers] in the array during the frame time.

15. (Twice Amended) The apparatus of claim 14, wherein the output circuit further comprises:

an integrator and an A/D converter to convert the output signal [value] to a digital signal value for each microbolometer [of the microbolometers] in the array.

16. (Twice Amended) The apparatus of claim 15, further comprising [wherein the measuring circuit further comprises]:

a digital image processor, coupled to the output circuit to receive the digital signal value associated with each microbolometer [of the microbolometers] of the array and correct the received digital signal value for image defects.

17. (Twice Amended) The apparatus of claim 16, wherein the digital image processor further comprises:

a correction circuit, to apply a corrective electrical signal based on a correction value to the output signal to correct for resistance non-uniformity in each microbolometer [of the microbolometers of the array] to obtain a uniform output signal value.

19. (Twice Amended) The apparatus of claim 18, wherein the digital image processor further comprises:

digital memories to store correction values for each microbolometer [of the microbolometers] in the array.

27. (Once Amended) A signal processing electronics circuit for an array including one or more microbolometers, comprising:

a timing circuit coupled to the array to apply two or more bias pulses substantially sequentially to each microbolometer [of the microbolometers] in the array such that the resulting temperature in each microbolometer [of the microbolometers] in the array due to the application of the bias pulses is substantially uniform during a frame time;

a measuring circuit coupled to the array to measure two or more resulting signals, respectively associated with each of the applied bias pulses during the frame time;

a computing circuit coupled to the measuring circuit to compute an average signal value for each microbolometer [of the microbolometers] in the array from the measured resulting signals during the frame time; and

an output circuit coupled to the computing circuit to produce an output signal based on the computed average signal value for each microbolometer [of the microbolometers] in the array during the frame time.

28. (Canceled) The circuit of claim 27, wherein the output circuit further comprises:

a correction circuit to apply a corrective electrical signal to the output signal to correct for resistance non-uniformity in each microbolometer [of the microbolometers of the array] to obtain a uniform output signal value.

29. (Once Amended) The circuit of claim 27 [28], wherein the output circuit further comprises:

an integrator and an A/D converter to convert the output signal [uniform output signal value] to a digital signal value for each microbolometer [of the microbolometers] in the array.

30. (Once Amended) The circuit of claim 29, further comprising:

a digital image processor coupled to the output circuit to receive the digital signal value associated with each microbolometer [of the microbolometers of the array] to correct for image defects such as fine offsets, gain non-uniformity or dead pixels.

31. (Once Amended) The circuit of claim 30, wherein the digital image processor further comprises:

a correction circuit to apply a corrective electrical signal based on a correction value to the output signal to correct for any resistance non-uniformity in each microbolometer [of the microbolometers of the array] to [a] obtain a uniform output signal value.

34. (Once Amended) The circuit of claim 33, wherein the two or more bias pulses are substantially equally spaced in time.

REMARKS

Applicant has carefully reviewed and considered the Office Action mailed on November 27, 2002, and the references cited therewith.

Claims 1, 4-5, 10, 14-17, 19, 27, 29-31, and 34 are amended and claim 28 is canceled. No new claims are added. As a result, claims 1-27 and 29-39 are now pending in this application.